Week 9

9.1

To connect to the internet, you need a public ip address.

Private ip address was a solution for the internet to go public and running out of public ip addresses.

public ip address will still run out, so they came up with the idea of SUBNETTING.

SUBNET: HOW?

* Public ip address hosts is subdivided into groups
  + This is done by concatenating an extra 2 bits from host into the 24 bit network
  + Network becomes a total of 26 bits
    - 70.5.4.0 – one network
    - 70.5.4.64 – another network
    - 70.5.4.128 – another network
    - 70.5.4.192 – another network

9.2

A Subnet mask is used for the router to know how to identify ip addresses that are subnetted

Convert the 32-bit network prefix to binary :

10000000 00001010 0000000 00000000 = 128.10.0.0

Consider a 32-bit mask:

11111111 11111111 00000000 00000000 = 255.255.0.0

Consider a 32-bit destination address on the network which has address:

1000000 00001010 0000010 000000011 = 128.10.2.3

AND between the destination address and the address mask extracts the high-order 16-bits:

1000000 00001010 00000000 0000000 = 128.10.0.0

CIDR Notation

/1 the first bit from the left is reserved for the network

/1 1000 0000 | - | - | - 128.0.0.0

/2 1100 0000 | - | - | - 192.0.0.0

/3 1110 0000 | - | - | - 224.0.0.0

/8 1111 1111 | - | - | - 255.0.0.0

Etc.